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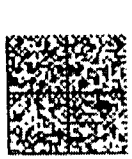

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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C.
1940 DUKE STREET
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EXAMINER	
YU, GINA C	

ART UNIT	PAPER NUMBER
1617	

DATE MAILED: 02/07/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/903,606	AUBRUN-SONNEVILLE ET AL.	
	Examiner	Art Unit	
	Gina C. Yu	1617	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *01 December 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13 and 15-48* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-6,8,12,13,15-29,31-33 and 35-48* is/are rejected.

7)☒ Claim(s) *7,9-11,30 and 34* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

The receipt is acknowledged of amendment and declaration filed on December 1, 2004. The finality of the Office action dated July 1, 2004 is hereby withdrawn as the rejections made under 35 U.S.C. § 103 (a) are withdrawn in view of applicants' remarks and the declaration. New rejections are now made in view of new prior arts. Claims 1-13 and 15-48 are pending.

Oath/Declaration

Declaration filed under 37 C.F.R. § 1.131 on December 1, 2004 was fully considered. The declaration, along with English translation of laboratory notes in French, indicates that applicants had reduced to practice the claimed invention prior to May 29, 2000 and after January 1, 1996. The earliest date of the presentation of Proceedings (5th World Surfactants Congress) is on May 29, 2000. The rejection made under 35 U.S.C. § 103 (a) over Aronson et al. (US 4,606,913) in view of Proceedings is withdrawn.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-6, 8, 12, 13, 15-20, 22, 23, 29, 31-33, 35-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Lachampt et al. (US 3846546) ("Lachampt").

Lachampt discloses cosmetic water-in-oil emulsion comprising emulsions stabilization agent which is prepared by copolymerization of an alpha-olefin having 10-20 carbon atoms (apolar monomer) and dicarboxylic anhydrides (polar component). See col. 3, lines 22- 41. See instant claims 1, 16, 19, 31-33, and 39. The reference teaches alpha-olefin of 1-decene, 1-dodecene, 1-tetradecene, 1-hexadecene, 1-octadece and 1-eicosene. See Id; instant claim 3. The reference also discloses dicarboxylic anhydrides including maleic anhydride, itaconic anhydride, and citraconic anhydride. See instant claims 5, 6, and 8. Example 2 discloses a water-in-oil emulsion comprising 56 % by weight of water and hydrocarbon oils (petroleum jelly, paraffin oil, isopropyl palmitate, lanoline, microcrystalline wax) which make up at least 40 % of the oily phase. See also Examples 3-20; col. 4, lines 24 – 34. See instant claims 12, 13, 15, 29, 31-33, 35, 36. The method of using the composition to treat skin is an inherent use of the moisturizing cream. See instant claims 17, 18. Since the molecular weight of the 50% 1-octadecene/50% maleic anhydride copolymer is 18,000, and the molecular weight of 1-octadecene is 252 g/mol and maleic anhydride, 98 g/mol, the copolymer has about 51 moles of the olefin, and thus meets the limitation of "polyolefinic apolar component comprising at least 40 carbon atoms". See instant claims 1, 2, 16, 19, and 39. Example 2 contains 1.3 % by weight of the copolymer, meeting instant claims 11, 40-45. The method of making the emulsion is also taught in the Examples. See instant claims 19 and 20. Example 2 contains isopropyl palmitate, which is fatty acid ester of straight fatty acid of 15 carbon atoms, meets instant claim 22 and 23. The term "make-up removing" refers to future intended use or purpose of the composition, and will not

be given any patentable weight. Nevertheless, Example 13 exemplifies a moisturizing "remover cream" which comprises isopropyl palmitate.

While the reference does not refer the polymer as an "emulsifier" the limitation is met since the prior art discloses the same compound. The property of the polymer to reduce the interfacial tension between the aqueous phase and the oily phase of the emulsion as recited in instant claim 4 is an inherent property of the prior art polymers.

Claims 1-6, 8, 12, 13, 15-20, 29, 31-33, 35-39, and 46-48 are rejected under 35 U.S.C. 102(b) as being anticipated by Viout et al. (US 3860700) ("Viout").

Viout discloses cosmetic water-in-oil emulsions comprising copolymer formed from an unsaturated dicarboxylic acid anhydride (polar component) and unsaturated monomer having alpha-olefins having 10-20 carbon atoms having a MW of 4000-100,000. See Examples 1-8; col. 3, lines 2 – 18. See instant claims 31-33. The reference discloses dicarboxylic anhydrides including maleic anhydride, itaconic anhydride, and citraconic anhydride. See col. 3, lines 2 – 13; see instant claims 5, 6, and 8. The reference teaches alpha-olefin of 1-decene, 1-dodecene, 1-tetradecene, 1-hexadecene, 1-octadece and 1-eicosene. See col. 3, lines 30-38; instant claim 3. The method of making water-in-oil emulsion by adding the copolymer in an oil to be emulsified and then adding a suitable amount of water is taught in Examples. See instant claims 19-20. Example E discloses a water-in-oil emulsion comprising 35 % by weight of water and hydrocarbon oils (paraffin oil) which make up at least 40 % of the oily phase. See also Examples A-N. See instant claims 12, 13, 15. The method of using the composition to treat skin is an inherent use of the moisturizing cream. See

instant claims 17, 18. Since the molecular weight of the 50% 1-eicosene /50% maleic anhydride copolymer used in Example E is 20,000, and the molecular weight of 1-octadecene is 280 g/mol and maleic anhydride, 98 g/mol, the copolymer has about 53 moles of the olefin, and thus meets the limitation of "polyolefinic apolar component comprising at least 40 carbon atoms". See instant claims 1, 2, 16, 19, and 39 . The method of making the emulsion is also taught in the Examples. See instant claims 19 and 20.

Claims 46-48 are met since the copolymer is the only emulsifying component in the composition. The property of the polymer to reduce the interfacial tension between the aqueous phase and the oily phase of the emulsion as recited in instant claim 4 is an inherent property of the prior art polymers.

Claim Rejections - 35 USC § 103

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Lachampt as applied to claims 1-6, 8, 12, 13, 15-20, 22, 23, 29, 31-33, 35-45 or Viout as applied to claims 1-6, 8, 12, 13, 15-20, 29, 31-33, 35-39, and 46-48, and further in view of Knowlton (Poucher's Perfumes, Cosmetics and Soaps, Emulsion Theory).

Lachampt and Viout fail to teach water-in-oil-in water or oil-in-water-in-oil emulsions.

Knowlton teaches that many emulsions in cosmetic art are in complex structure of W/O/W or O/W/O emulsions. See p. 535, first full par. The reference teaches, "classification of emulsions into two types, each having two discreet phases", is simplistic. A deeper examination of emulsion systems reveals other phases apart from 'oil' and 'water' and included amongst these is the 'emulsifier phase' itself and the existence of liquid crystals." See Id.

It would have been obvious to one of ordinary skill in the art at the time the invention was made that the emulsions of Lachampt or Viout are in fact W/O/W or O/W/O emulsions as taught by Knowlton because the latter teaches that a two-phase emulsion in fact leads to the formation of multiphase systems.

Claims 24, 25, 26, and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lachampt as applied to claims 1-6, 8, 12, 13, 15-20, 22, 23, 29, 31-33, 35-45 or Viout as applied to claims 1-6, 8, 12, 13, 15-20, 29, 31-33, 35-39, and 46-48, and further in view of Aronson et al. (US 4,606,913) ("Aronson").

The references fail to teach at least 80 % by weight of aqueous phase.

Aronson et al. is directed to high-internal phase emulsions wherein the emulsion is water-in-oil. See col. 5, lines 28-29. For hydrocarbon oils see column 6, lines 40- The amount of oily phase in water-in-oil emulsions is about 2-24% by volume (col. 6, lines 57-68). The amount of aqueous phase in water-in-oil emulsions is usually about 76-98% by volume (col. 7, lines 7-13). The reference teaches the method of making stable high internal phase emulsions less costly. See col. 3, lines19 – 31, col. 5, lines 16 – 31.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the composition of the Lachampt or Viout by making high internal phase emulsion as motivated by Aronson because the latter teaches that the high internal phase emulsions made according to the invention are less costly and stable. There is a reasonable expectation of successfully making the claimed invention because all the references are directed to cosmetic emulsions with water and hydrocarbon oils.

Allowable Subject Matter

Claims 7, 9-11, 30, and 34 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

Applicant's arguments with respect to claims 1-13 and 15-48 have been considered but are moot in view of the new ground(s) of rejection in part, as discussed above.

Conclusion

Claims 1-6, 8, 12, 13, 15-29, 31-33, 35-48 are rejected.

Claims 7, 9-11, 30, and 34 are objected to.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gina C. Yu whose telephone number is 571-272-0635.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sreeni Padmanabhan can be reached on 571-272-0629. The fax phone

number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gina Yu
Patent Examiner

SREENI PADMANABHAN
SUPERVISORY PATENT EXAMINER

Notice of References Cited	Application/Control No. 09/903,606	Applicant(s)/Patent Under Reexamination AUBRUN-SONNEVILLE ET AL.	
	Examiner Gina C. Yu	Art Unit 1617	Page 1 of 1

U.S. PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Name	Classification
	A	US-3,846,546	11-1974	Lachampt et al.	514/783
	B	US-3,860,700	01-1975	Viout et al.	424/61
	C	US-			
	D	US-			
	E	US-			
	F	US-			
	G	US-			
	H	US-			
	I	US-			
	J	US-			
	K	US-			
	L	US-			
	M	US-			

FOREIGN PATENT DOCUMENTS

*		Document Number Country Code-Number-Kind Code	Date MM-YYYY	Country	Name	Classification
	N					
	O					
	P					
	Q					
	R					
	S					
	T					

NON-PATENT DOCUMENTS

*		Include as applicable: Author, Title Date, Publisher, Edition or Volume, Pertinent Pages)
	U	Knowlton , J. "Emulsion Theory", Poucher's Perfumes, Cosmetics and Soaps, Vol. 3, (9th ed., Hilda Butler), 1993, pp 534-5.
	V	
	W	
	X	

*A copy of this reference is not being furnished with this Office action. (See MPEP § 707.05(a).)
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Edited and revised by

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19

Emulsion theory

John L. Knowlton

19.1 INTRODUCTION

The old adage 'oil and water don't mix' is something of a paradox in the context of emulsion theory for, in simplistic terms, emulsions are indeed mixtures of oily and aqueous materials.

Emulsions have been used for many centuries in a variety of ways, including that of cosmetic decoration. Modern day emulsion technology provides massive scope for the design and production of a wide range of products in the cosmetics, toiletries and healthcare markets. The reasons why emulsions have become so popular are many fold, the most obvious being that they allow incorporation of otherwise incompatible polar and non-polar materials in the same product. This, in turn, gives the opportunity for enormous flexibility in the choice of formulation design and the possibility of incorporating topically applied 'active' materials is an added benefit for pharmaceutical and healthcare products. Such flexibility offers scope for the creation of cosmetic elegance by modification of sensory attributes. Specifically, control of parameters such as product appearance, feel and viscosity, all have a significant impact on the consumer's perception of the finished product. Finally, but by no means least important, the level of water in many emulsion products provides a feasible route for marketing a cost-effective product.

The combination of the above factors has given rise to the enormous growth of emulsion products in the cosmetics and toiletries industry, with many hundreds of products on the market.

19.2 DEFINITION AND TYPES OF EMULSION

An emulsion can be defined as 'A two phase system, consisting of two immiscible or partially miscible liquids, one being dispersed in the other in the form of very fine droplets'.

The 'phases' described in the above definition are normally referred to as 'oil' and 'water', these terms being commonly used to describe non-polar **lipophilic** ('fat-loving') and polar **hydrophilic** ('water-loving') materials, respectively. In that every emulsion can be described as having an oil phase and a water phase, it is then obvious that two types of emulsion are possible. The first type is that where discreet droplets of oil are dispersed in water, referred to as an **oil-in-water** emulsion, whilst the second contains discreet droplets of water in oil and is known as a **water-in-oil** emulsion. Irrespective of type, the discreet phase of an emulsion is known as the **internal** or **dispersed** phase, whilst the continuum is referred to as the **external** or **continuous** phase.

It must be emphasized at this point that classification of emulsions into two types, each having two discreet phases, is simplistic. A deeper examination of emulsion systems reveals other phases apart from 'oil' and 'water' and included amongst these is the 'emulsifier phase' itself and the existence of liquid crystals. Many emulsions therefore have a more complex structure, leading to the formation of multiphase systems, examples of which are **water-in-oil-in-water** emulsions and **oil-in-water-in-oil** emulsions. Such considerations are, however, beyond the scope of this text, which aims to provide a comprehensive overview of emulsion systems based on the previously described simplistic approach.

19.3 THE FORMATION OF EMULSIONS

There are many approaches to the examination of emulsion formation but perhaps one of the most easily understood is to consider the energy of the system. An emulsion can be formed by simply applying external mechanical energy (e.g. rapid stirring) to a system which contains immiscible or partially miscible oil and water phases. The mechanical energy will break down the two phases, dispersing one in the other, in the form of very fine droplets. Once the mechanical energy is removed, the emulsion, in the absence of any other stabilizing force, will break down into its oil and water phases very quickly with time. This process is represented diagrammatically in Fig. 19.1.

The reasons for collapse of the emulsion can be explained in terms of the free surface energy of the system. This energy term will be directly proportional to the interfacial area between the oil and water phases as described by the following equation:

$$dS = K \cdot dA$$

where S is the surface energy;
and A is the surface area.

When the emulsion is formed, the interfacial surface energy of the system will rise enormously, due to the large increase in interfacial surface area.